

CURRICULUM VITAE ABREVIADO (CVA)

Part A. PERSONAL INFORMATION

First name	Juncal		
Family name	Garmendia García		
Gender (*)	Female	Birth date (dd/mm/yyyy)	31/08/1973
Social Security, Passport, ID number	15258061E		
e-mail	juncal.garmendia@csic.es	URL Web	https://www.idab.csic.es
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-7440-2737		

A.1. Current position

Position	Investigadora Científica CSIC		
Initial date	May 22 nd , 2023		
Institution	Consejo Superior de Investigaciones Científicas (CSIC)		
Department/Center	Instituto de Agrobiotecnología (IDAB)		
Country	Spain	Teleph. number	948168484
Key words	Molecular mechanisms of bacterial infection, pathoadaptive evolution, antimicrobials, respiratory disease, lung dysbiosis		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
09/10/2009-05/2023	Científica Titular CSIC
03/2006-10/2009	Contratada Miguel Servet, Fundación Caubet Címera, Spain
01/2004-03/2006	Postdoctoral Research Associate, Imperial College London, UK
01/2002-12/2003	EMBO Postdoctoral Fellow, Imperial College London, UK
10/1996-12/2001	Beca Predoctoral Gob. Vasco, Centro Nacional de Biotecnología-CSIC, Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Doctora en Biología	Universidad Autónoma de Madrid	2001
Licenciada en Biología	Universidad de Navarra	1996

Part B. CV SUMMARY

Research Activities. My scientific career, developed at Spanish and British research institutions, is built under the frame of Microbial Biotechnology, Bacterial Engineering and Bacterial Pathogenesis. My **PhD thesis work (1996-2001)** as beneficiary of a *Beca Predoctoral Gob. Vasco* was supervised by Prof. Víctor de Lorenzo at **Centro Nacional de Biotecnología (CNB-CSIC)**, and assessed the regulation of gene expression in *Pseudomonas putida* to engineer bacteria tightly controlling detection or degradation of specific aromatic pollutants. I visited Dr. V Shingler's lab in Umea U. (Sweden) during a short stay, presented my work at international scientific meetings and co-authored publications in internationally recognized journals (Mol Microbiol, Environ Microbiol, etc.), being first author in several of them. Later on, I was awarded an **EMBO Postdoctoral Fellowship (2002-2003)** to work in the **Centre for Molecular Microbiology and Infection (CMMI), Imperial College London (ICL) UK**, in Prof. David W. Holden lab. This was an important inflection point in my scientific career, switching from environmental microbiology to molecular mechanisms of bacterial pathogenesis. I focused on *Salmonella* and became an expert on molecular and cellular microbiology of infection. I presented my work in scientific meetings and co-authored a number of publications (Microbiology, PNAS), as first author in some cases. Next, I continued my career as a **Postdoctoral Research Associate (2004-2006)** in **CMMI-ICL**, in Prof. Gad Frankel lab. I moved from facultative intracellular (*Salmonella*) to extracellular (EPEC, EHEC) pathogens, applied cutting-edge approaches to underlying mechanisms of infection by T3SS-encoding pathogens, and visited twice for short time periods Dr. MF Carlier lab at CNRS Gif-sur-Yvette (France). This productive period led me co-

authoring numerous publications (Cell Microbiol, Infect Immun, Curr Opin Microbiol, JCM, etc), as first author in several of them.

At that point, being a highly motivated researcher willing to face new challenges, I was awarded a **Miguel Servet contract from ISCIII** and moved to **Fundación Caubet-Cimera**, Mallorca (**2006-2009**). This natural evolution towards becoming an independent researcher involved a second switch from enteric to respiratory pathogen pathogenesis mechanistic studies. I started my research management activity, became PI of competitive research projects from public and private national funding bodies (FIS, Mutua Madrileña), started supervising PhD students and increased my publication record as first, and from now on also as corresponding author (Eur Res J, BMC Microbiol, Infect Immun, etc). In 2007, I was integrated in CIBERES as a network member.

In Oct **2009**, I became **Científica Titular CSIC** and moved to the **Institute of Agrobiotechnology (IDAB-CSIC)** in Navarra. Since then, I keep expanding my views to decipher mechanisms of bacterial pathogenesis within the human airways, and gathering key knowledge to effectively fight infection. I lead national (PID, SEPAR) and regional (GobNavarra) research projects uninterruptedly, participate in EU projects (Nanotemec, Era4Health Partnership), and manage a highly motivated and dynamic research team. I have supervised TFG students, and **already finalized and ongoing PhD students**, always aiming for a positive impact on their professional careers and hoping for the highest scientific standards. Our scientific results are regularly presented in national and international meetings, and published in prestigious journals (PLoS Path, mBio, mSpectrum, Anal Chem, Virulence, PNAS, etc). In May **2023**, I was promoted to **Investigadora Científica CSIC**.

Since Dec **2013**, I **coordinate the CIBERES Scientific Line Pathogen-Host Interactions-Respiratory infections**: from mechanisms to therapeutics. I became a **CIBERES group leader in 2020** (CB06/06/1102). In 2013, I visited Dr. R Redfield lab in U. British Columbia (Canada) as **Salvador Madariaga Program** grantee. This was the germ for a fruitful collaboration for highly inspirational and still ongoing genomic studies on bacterial pathoadaptation. I must acknowledge that our activity is highly **interdisciplinary**, built on the basis of an excellent **network of national and international academic and clinical collaborators**, experts on pulmonology, infectious diseases, imaging, computational modelling, medicinal chemistry, bioinformatics, bioengineering. Our networking activity also involves participating in Spanish Excellence Thematic Networks (BACFITERed and NANOCARE, finished) and in the ongoing CSIC Connections NANOMEDICINE and Antimicrobial Resistance-AMR (**member of the coordination team** in the AMR Connection).

Societal contributions. I collaborate with the Pharma industry as a means of *Contratos de Apoyo Tecnológico* and supervise students awarded with Navarra Industrial Doctorate Program PhD fellowships. I regularly participate in dissemination events targeting patient and medical professional organizations (SEPAR, CIBERES), and the general public. **Evaluation activities.** Since 2010, I uninterruptedly participate in evaluation processes: ANEP collaborator, BIO (2010-2015); **AEI collaborator, BIO-BTC (2020-to the present)**; invited expert in national panels (JIN2015, BFU2016, *Explora* 2015, BME-IIT2019, etc); invited expert in *Gob. Vasco* Human Resources panels (2015-2018). During 2020-2024, I was a **permanent expert at the Comisión Nacional de Bioseguridad**.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications *One original publication per year is included in this list*

12. Rapún-Araiz B, Euba B, Mell J,..., Garmendia J. CA: **Garmendia J (5/5)**. A 5'-UTR *cis*-acting RNA element targeted by RNase III is essential for DNA simple sequence repeat-dependent phase variation in *Haemophilus influenzae*. **Nucleic Acid Research**, *in press*

11. Gil-Campillo C, Mignolet J, Domínguez-San Pedro A,...,Garmendia J. CA: **Garmendia J (8/8)**. 2025. CRISPRi-seq in *Haemophilus influenzae* reveals genome-wide and medium-specific growth determinants. **PLoS Pathog.** 21(10):e1013650. doi: 10.1371/journal.ppat.1013650.

10. Gil-Campillo C, Euba B, Rodríguez-Arce I, ..., Garmendia J. CA: **Garmendia J (12/12)**. 2025. Epigenetic control of the ferric uptake regulator (Fur) and fumarate nitrate reductase (FNR) master regulatory proteins contributes to *Haemophilus influenzae* survival during lung infection. **mBio**;16(8):e0135525. doi: 10.1128/mbio.01355-25.

9. Asensio-López J, Lázaro-Díez M, Hernández-Cruz TM,..., Garmendia J. CA: **Garmendia J (13/13)**. 2024. Multimodal evaluation of drug antibacterial activity reveals cinnamaldehyde analog anti-biofilm effects against *Haemophilus influenzae*. **Biofilm.** 7:100178.

8. Euba B, Gil-Campillo C, Asensio-López J,..., Garmendia J. CA: **Garmendia J (9/9)**. 2023. *In vivo* genome-wide gene expression profiling reveals that *Haemophilus influenzae* purine synthesis pathway

- benefits its infectivity within the airways. **Microbiol Spectr.** 11(3):e0082323. doi: 10.1128/spectrum.00823-23. 2 citations.
7. López-López N, León DS, de Castro S,..., Garmendia J. **CA: Garmendia J (9/9)**. 2022. Interrogation of essentiality in the reconstructed *Haemophilus influenzae* metabolic network identifies lipid metabolism antimicrobial targets: preclinical evaluation of a FabH β -Ketoacyl-ACP synthase inhibitor. **mSystems**. Apr 26;7(2):e0145921. doi: 10.1128/msystems.01459-21. 6 citations.
6. Fernández-Calvet A, Euba B,..., Garmendia J. **CA: Garmendia J (16/16)**. 2021. Phase variation in HMW1A controls a phenotypic switch in *Haemophilus influenzae* associated with pathoadaptation during persistent infection. **mBio**. 12(3):e0078921. doi: 10.1128/mBio.00789-21. 10 citations.
5. López-López N, Euba B, Hill J,..., Garmendia J. **CA: Garmendia J (14/14)**. 2020. *Haemophilus influenzae* glucose catabolism leading to production of the immunometabolite acetate has a key contribution to the host airway-pathogen interplay. **ACS Infectious Diseases**. Feb 10. doi: 10.1021/acsinfecdis.9b00359. 13 citations.
4. Rodríguez-Arce I, Al-Jubair T, Euba B,..., Garmendia J. **CA: Garmendia J (9/9)**. 2019. Moonlighting of *Haemophilus influenzae* heme acquisition systems contributes to the host-airway interplay in a coordinated manner. **Virulence**. Dec;10(1):315-333. doi: 10.1080/21505594.2019.1596506. 18 citations.
3. Moleres J, Fernández-Calvet A, Ehrlich RL,..., Garmendia J. **CA: Garmendia J (15/15)**. 2018. Antagonistic pleiotropy in the bifunctional surface protein FadL/P1 during adaptation of *Haemophilus influenzae* to chronic lung infection associated with COPD. **mBio**. Sept 25;9(5):e01176-18). <https://doi.org/10.1128/mBio.01176-18>. 33 citations.
2. Mell JC, Viadas C, Moleres J,..., Garmendia J. **CA: Garmendia J (10/10)**. 2016. Transformed recombinant enrichment profiling rapidly identifies an intracellular invasion locus in naturally competent *Haemophilus influenzae*. **PLoS Pathogens** Apr 28;12(4):e1005576. doi: 10.1371/journal.ppat.1005576. 14 citations.
1. Llobet E, Martínez-Moliner V, Moranta D,..., Garmendia J, Bengoechea JA. **CA: Bengoechea JA. Garmendia J (11/12)**. 2015. Decoding tissue-induced *Klebsiella pneumoniae* lipid A. **Proceedings National Academy Sciences USA** 112(46): E6369-78. DOI: 10.1073/pnas.1508820112. 74 citations.

C.2. Congress

Presentations as invited speaker:

10. **J Garmendia**. Anti-virulence nanomedicines for the treatment of chronic bacterial respiratory infectious diseases. I Congreso CIBER, November 27-29, 2024, Valencia. Price to J Garmendia to best talk in thematic session “Nuevas estrategias en la lucha frente a la resistencia antimicrobiana”.
9. **J Garmendia**. Nanoencapsulated cinnamaldehyde analog anti-biofilm effects against *Haemophilus influenzae*. Red Conexión NANOMEDICINA-CSIC, March 27-28 2023, Madrid
8. **J Garmendia**. El reto de la pato-adaptación: estrategias de patógenos bacterianos oportunistas para “ir de incógnito” en el sistema respiratorio humano. XXVIII Congreso Sociedad Española de Microbiología (SEM). Virtual, June 28-July 2, 2021
7. **J Garmendia**. Facing challenges in the development of novel antimicrobials to tackle antibiotic resistance by human adapted respiratory pathogens. Spanish Conference on Biomedical Applications and Nanomaterials. Virtual, June 2-4, 2021
6. **J Garmendia** *Haemophilus influenzae* strategies for host adaptation and pathogenesis. 15th EMGM Congress, The European Meningococcal and *Haemophilus* disease Society. May 27-30, 2019. Lisbon

Oral presentations:

5. C Sobejano de la Merced, Riera-Pons, I Cortés-Domínguez, **J Garmendia**, C Ortiz de Solórzano. Desarrollo y validación de una plataforma microfluídica *Airway-Infection-on-a-Chip* para el modelado de infecciones bacterianas crónicas. XIV Reunión Grupo Especializado Microbiología Molecular SEM, June 17-19, 2024, Santander. Price to best talk by the 1st author
4. B Rapún-Araiz, I Sorzabal-Bellido, J Asensio-López,..., **J Garmendia**. Modelling polyclonal infection dynamics within the human airways by *Haemophilus influenzae* differential fluorescent labelling. XIX Congreso Sociedad Española Microbiología, June 25-28, 2023. Burgos. Price to best talk by the 1st author, awarded by Grupo Especializado Biología de Microorganismos Patógenos SEM
3. **J Garmendia**, N López-López, B Euba, et al.. Glucose catabolism by respiration-assisted fermentation leading to acetate production has a key contribution to chronic patient airway infection by *H. influenzae*. European Respiratory Society International Congress, Sept 28-Oct 2, 2019. Madrid

2. J Garmendia. Nontypeable *Haemophilus influenzae* patho-adaptation within the airways of chronic obstructive pulmonary disease patients with long-term microbial persistence. Prokagenomics 2017, 7th European conference on prokaryotic and fungal genomics. Sep 19-22, 2017. Gottingen, Germany

C.3. Research projects (*please consider that, in all cases, direct costs are indicated*)

10. PID2024-155918OB-I00, PULM-PER-CLIN. From the host-pathogen interplay to lung microbiome ecology: towards personalizing the clinical management of respiratory infection. Funding Agency: Agencia Estatal Investigación. Call 2024. Resolución Provisional. Amount: 265.000€, 1 FPI contract. **IP: J Garmendia**

9. OLIVFUN. Aprovechamiento Sostenible de Subproductos del Olivar para la Obtención de Ingredientes Funcionales en Cosmética y Alimentación. Funding Agency: Dpto. Industria y Transición Ecológica y Digital Empresarial. Proyectos I+D Gobierno de Navarra 2025. Dates: Sept 2025-April 2027. Coordinated Project; amount to CSIC partner: 101.453,92€. **IP from CSIC: J Garmendia.**

8. Nano2FILM. Targeted multiplexed lipid nanocarriers against drug-resistant bacterial biofilm. EU project, ERA4Health – NANOTECMEC. Call 2024. Dates: Apr 2025-Apr 2028. Coordinated project; amount to CSIC partner: 219.975€. IP CSIC partner and project coordinator: A González-Paredes; **J Garmendia, CSIC partner team member**

7. Valsana. Valorización subproductos agroalimentarios de Navarra. Funding Agency: Govern of Navarra, Dep. Business and Economic Development. Call 2023. Dates: June 2023-Dec 2025. Coordinated Project; amount to CSIC partner: 102.642€. **IP CSIC partner: J Garmendia.**

6. Micro-Pron-EPOC. Identificación de marcadores microbiológicos pronósticos en pacientes EPOC mediante análisis de microbiota en el eje boca-pulmón asistido por herramientas de aprendizaje automático. Funding Agency: Govern of Navarra, Dep. Health. Call 2023. Dates: Dec 2023-Dec 2026. Amount: 69.506€. **IP: J Garmendia**

5. PC136-Polifarma-3D. Hacia la personalización del tratamiento de infecciones respiratorias crónicas polimicrobianas: evaluación de fármacos sostenibles mediante modelos pulmonares 3D. Funding Agency: Govern of Navarra, Dep. Universities, Innovation and Digital Transformation. Call 2020. Dates: Sept 2022-Nov 2024. Coordinated Project; amount to CSIC partner: 118.445€. **IP from CSIC subproject and consortium coordinator: J Garmendia.** Price SciencEkaitza 2023, <https://www.sciencekaitza.com/proyectos/>

4. PID2021-125947OB-I00. Descifrando la interacción huésped-patógeno en el sistema respiratorio humano para contrarrestar cronicidad y fallo terapéutico. Funding Agency: Agencia Estatal Investigación. Call 2021. Sept 2022-Aug 2025. Amount: 275.000€, 1 FPI contract. **IP: J Garmendia**

3. PC150-Nanofarmachip. Nanotechnological development of innovative antimicrobials and efficacy evaluation on airway-on-a-chip microfluidic devices. Funding Agency: Govern of Navarra, Dep. Universities, Innovation and Digital Transformation. Call 2020. Dates: Sept 2020-Nov 2022. Coordinated Project, Amount to CSIC partner: 135.672€. **IP from CSIC subproject and consortium coordinator: J Garmendia**

2. RTI2018-096369-B-I00. Multilateral understanding of the host-pathogen interplay at the human airways towards development of innovative tools to fight *Haemophilus influenzae* infection. Funding Agency: Ministerio de Ciencia, Innovación y Universidades (MICIU). Call 2028. Dates: 2019-2021. Amount: 230.000€, 1 FPI contract. **IP: J Garmendia**

1. SAF2015-66520-R. Adaptive evolution, pathogenesis and host subversion by *Haemophilus influenzae* in the COPD lung: identification, characterization and evaluation of antimicrobial therapeutics. Ministerio de Economía y Competitividad-MINECO. Call 2015. Dates: 2016-2018. Amount: 200.000€. **IP: J Garmendia**

C.4. Contracts, technological or transfer merits.

1. Patent application, P202330244, March 23, 2023. Nanoemulsiones para inhibir la formación de biopelículas bacterianas. EArroyo-Urea, MLázaro-Díaz, **JGarmendia**, FHerranz, AGonzález Paredes

2. Contrato de apoyo tecnológico CSIC-Telum Therapeutics SL. Project: Pseudo-Enter, a novel phagic therapy against *Pseudomonas aeruginosa* and multi-drug resistant enterobacteria. Dates: 19/11/2020 to 31/12/2022. Amount: 61.105€ (total costs). **IP: J Garmendia**

Additional information: Training capacity: 9 supervised PhD students finalized (Sobresaliente *Cum Laude* in all cases); 3 currently on-going.